

Dec. 19, 1933.

H. T. TUCKER

1,940,569

FOLDING TABLE LEG BRACE

Filed May 16, 1932

4 Sheets-Sheet 1

FIG. 1.

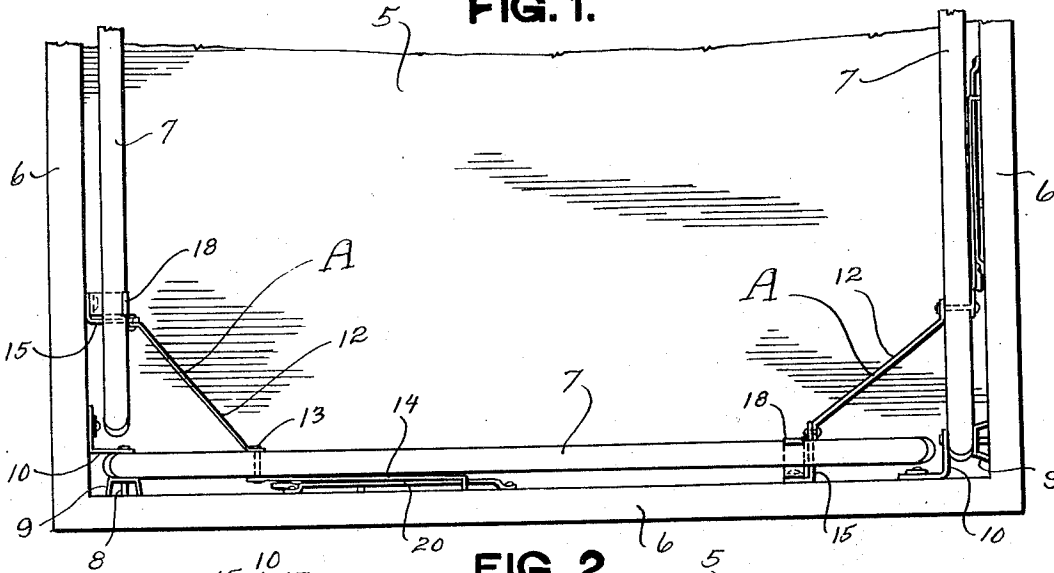


FIG. 2.

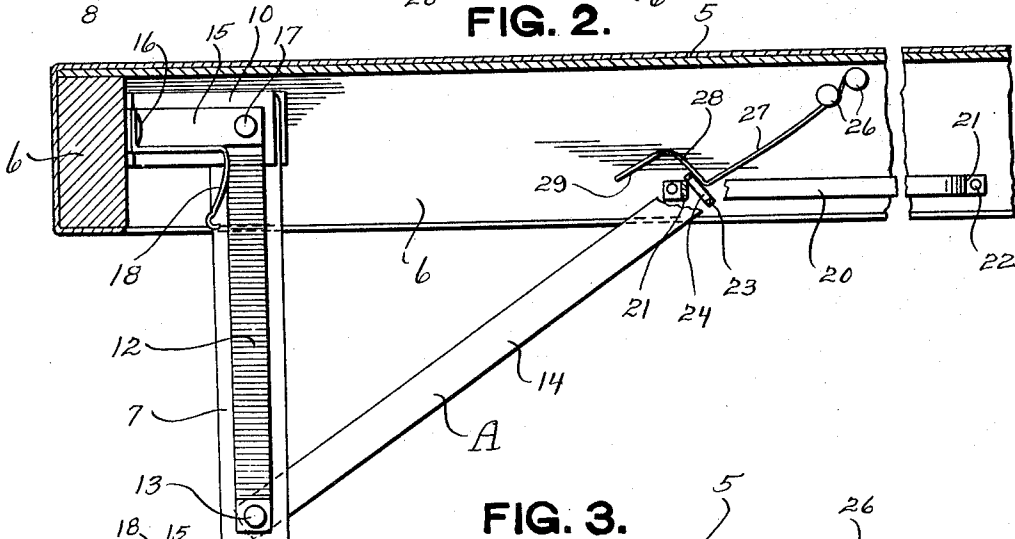
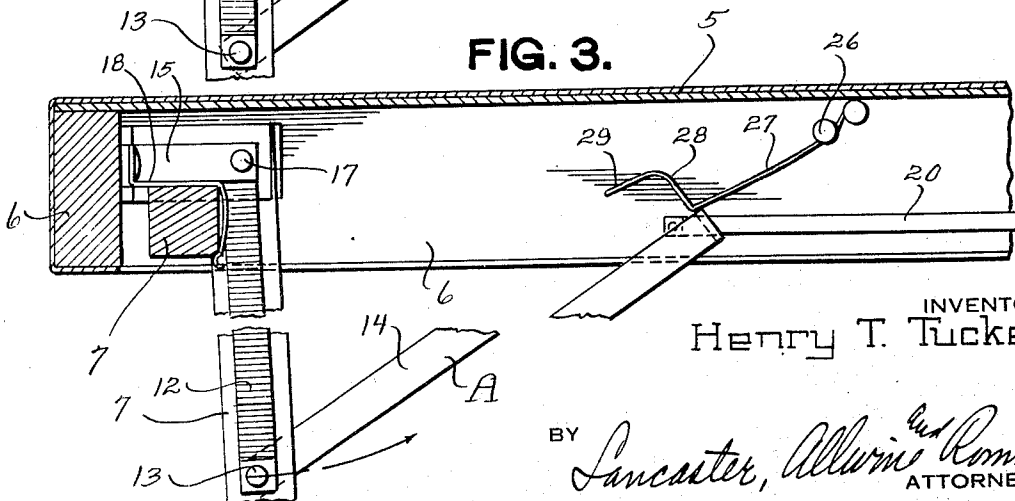


FIG. 3.



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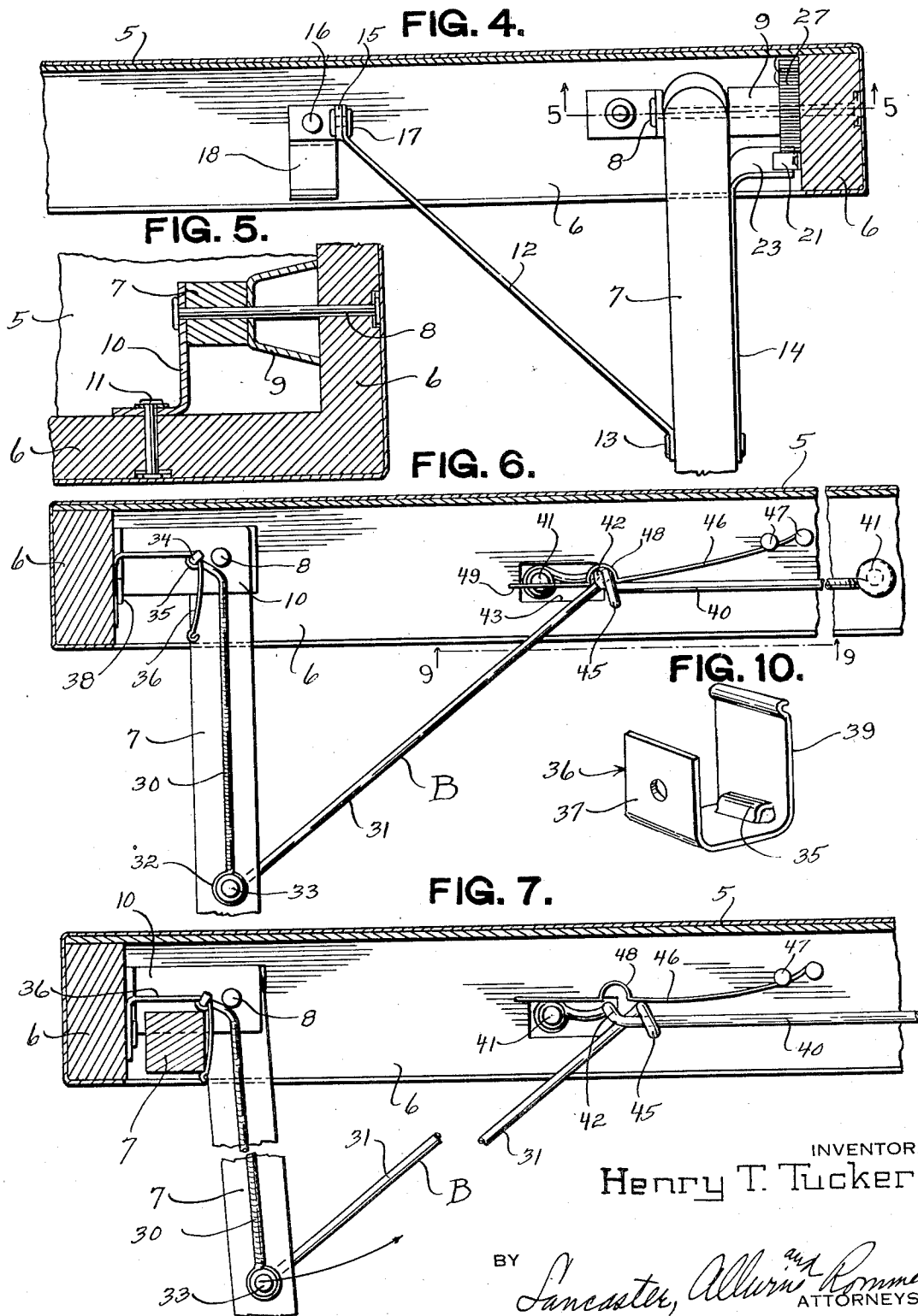
H. T. TUCKER

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FIG. 8.

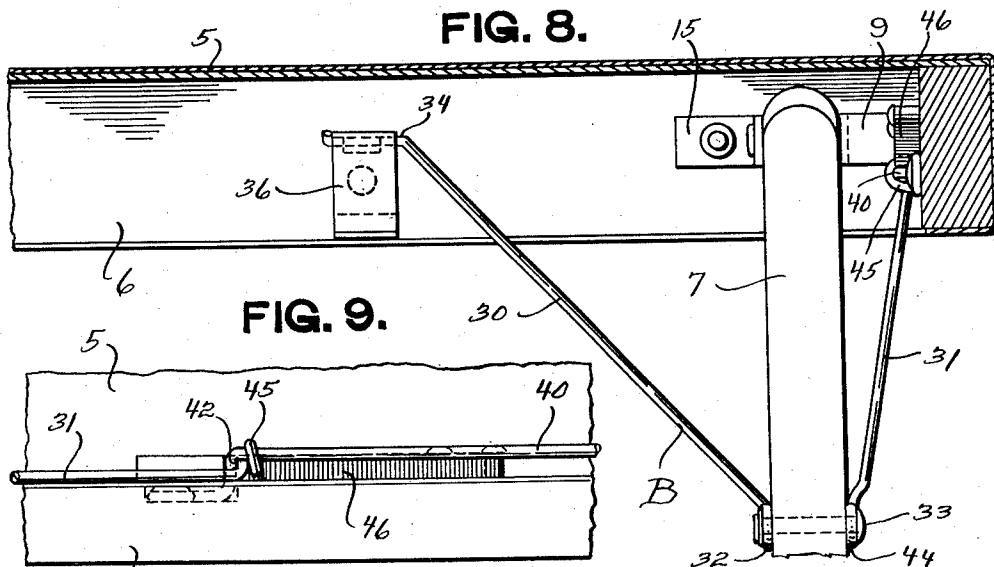


FIG. 9.

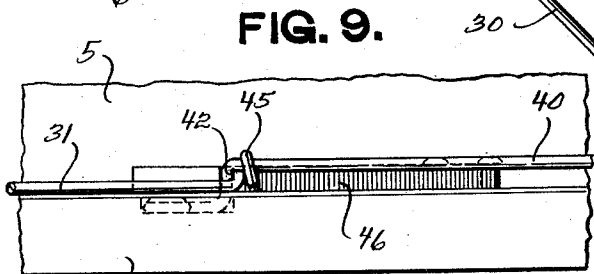


FIG. 11.

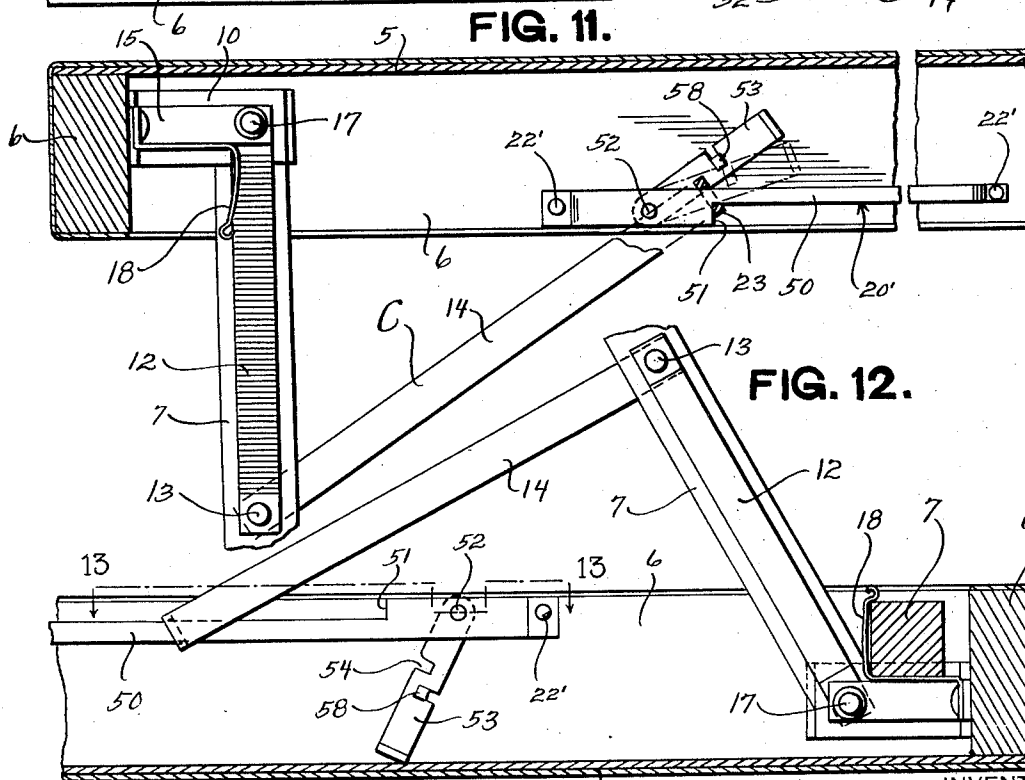
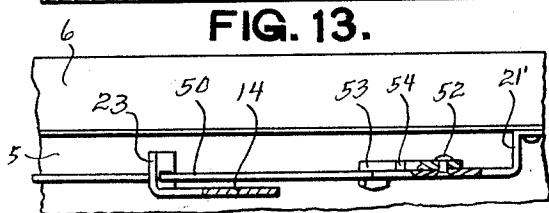


FIG. 12.

FIG. 13.



INVENTOR.
Henry T. Tucker

BY *Sancauter, Alvin and Rommel*
ATTORNEYS.

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H. T. TUCKER

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FIG. 14.

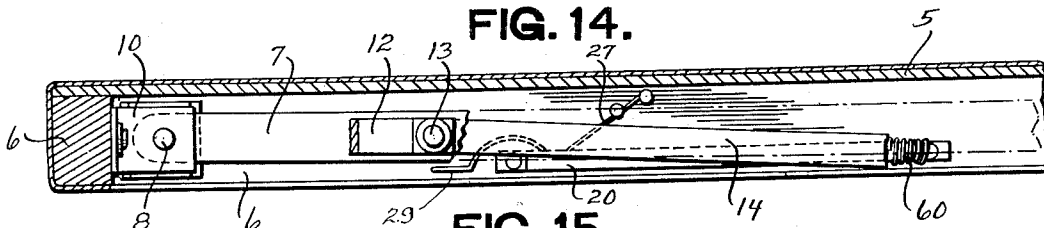


FIG. 15.

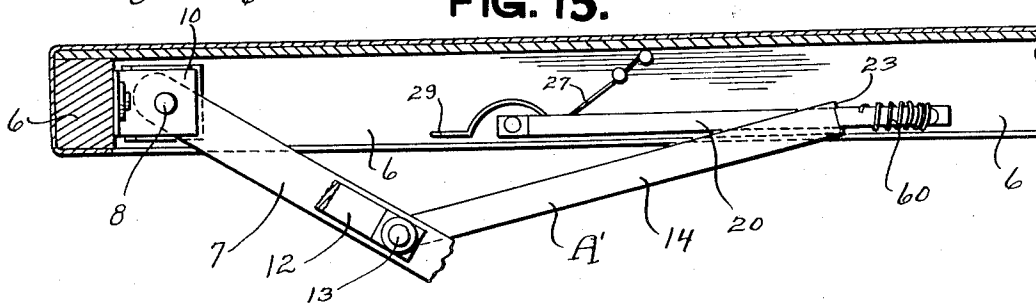


FIG. 16.

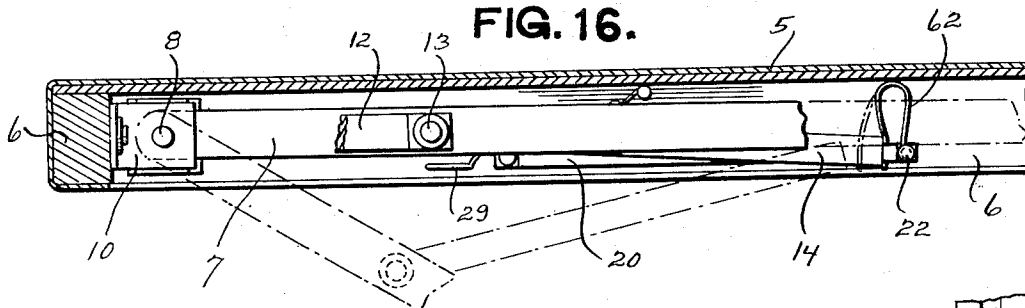
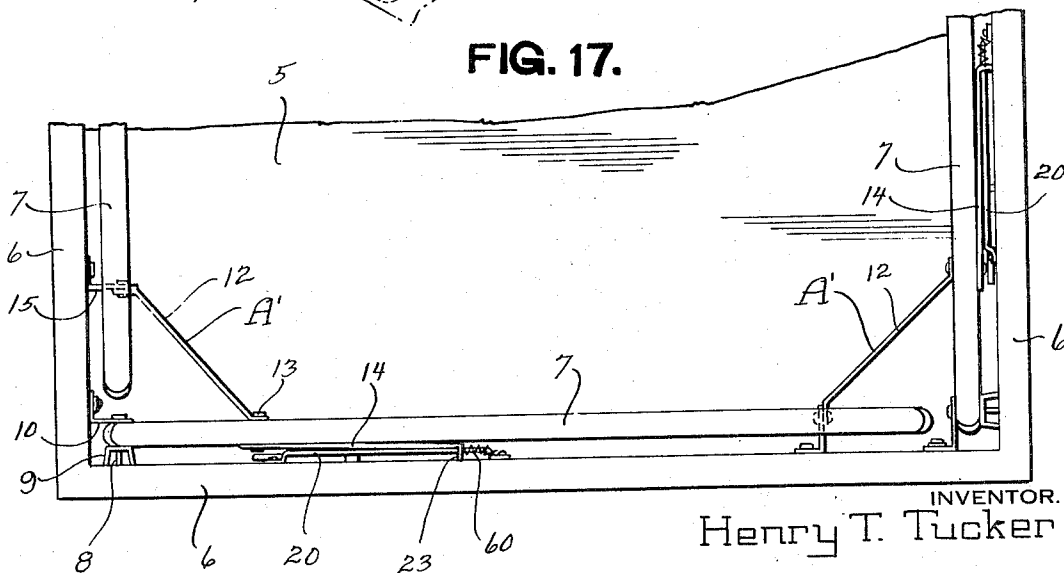


FIG. 17.



INVENTOR.
Henry T. Tucker

BY *Lancaster, Allwine and Rommel*
ATTORNEYS.

UNITED STATES PATENT OFFICE

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FOLDING TABLE LEG BRACE

Henry T. Tucker, Fort Smith, Ark.

Application May 16, 1932. Serial No. 611,727

4 Claims. (Cl. 45—11)

The present invention relates to tables of that type having folding legs and generally known as card tables, such tables having a top frame inwardly of which the legs are folded along the side rails of the frame.

The primary object of the invention is to provide improved folding table leg brace means wherein the legs will be rigidly held in an extended or open position.

A further object of the invention is to provide an improved bracing means for folding table legs embodying a spring device for holding the legs in an open position and readily releasable to permit folding of the legs.

A further object of the invention is to provide bracing means for folding table legs embodying brace members arranged in right angular relation for bracing the legs in two directions when extended, one of said brace members being foldable with the leg and the companion brace member being pivoted at one end upon the leg and having sliding movement at its opposite end into engagement with locking means serving to retain the leg in an open or extended position.

A further object resides in the novel means whereby the locking device is automatically engageable with the pivoted and sliding brace member upon the limit of opening movement of the leg.

A still further object is to provide an arrangement whereby the legs and bracing means therefor are completely foldable into the framing of the table top, with means for yieldably retaining the legs in a folded position.

A still further object is to provide a folding table construction which may be manufactured at a low cost, and one wherein the usual forms of elbow bracing or jack knife braces are dispensed with, the right angularly arranged brace members being solid thruout their length.

Other objects and advantages of the invention will be apparent during the course of the following detailed description, taken in connection with the accompanying drawings forming a part of this specification and in which drawings:—

Figure 1 is a fragmentary bottom plan view of a table provided with the improved leg bracing means and showing the legs in a folded position.

Figure 2 is an enlarged sectional view thru one corner portion of the table and showing the leg in an extended or opened position.

Figure 3 is a fragmentary sectional view showing the retaining spring raised to permit folding of the leg in the direction of the arrow.

Figure 4 is a fragmentary sectional view of

one corner portion of the table and taken at a right angle to the showing in Figure 2.

Figure 5 is a fragmentary sectional view on the line 5—5 of Figure 4 and showing the manner of pivotally mounting the legs.

Figure 6 is a fragmentary sectional view of one corner portion of the table and showing a modified form of brace means, Figure 6 showing an arrangement whereby the brace members and slides may be formed from cylindrical material.

Figure 7 is a view similar to Figure 6 but showing the spring keeper raised to permit folding of the legs.

Figure 8 is a fragmentary sectional view taken at a right angle to the showing in Figure 6.

Figure 9 is a fragmentary sectional view on the line 9—9 of Figure 6.

Figure 10 is a perspective view of one of the spring clips for use with the form of bracing shown in Figures 6 to 9 inclusive for holding the legs in a closed position.

Figure 11 is a fragmentary sectional view showing a gravity actuated keeper for retaining the legs in an open position.

Figure 12 is a fragmentary sectional view showing the table in an inverted position and the gravity actuated keeper dropped out of holding engagement with the locking brace member to permit folding of the legs.

Figure 13 is a fragmentary section on the line 13—13 of Figure 12.

Figure 14 is a fragmentary sectional view showing modified means for retaining the legs in a folded position, the leg being shown held in a closed position.

Figure 15 shows the legs partly swung open.

Figure 16 shows a form of leaf spring substituted for the coil spring shown in Figures 14 and 15 for holding the leg in a closed position.

Figure 17 is a fragmentary bottom plan view of a table provided with the leg retaining spring means shown in Figures 14 and 15.

Referring to the drawings in detail, and wherein similar reference characters designate corresponding parts thruout the several views, in each of the modifications shown the table comprises a preferably square top 5 which may be of any desired material and secured to a suitable frame formed by the side rails 6 depending from each marginal edge of the top 5. Adapted to be pivotally mounted in each corner portion of the frame formed by the side rails 6 is a leg 7 and these legs when in a folded position are intended to extend parallel with the side rails 6. While in the example shown the legs 7 are of

square shape in cross section, the legs may of course be of any desired shape.

In each form of bracing means, the legs 7 are pivotally mounted at one end upon a pivot 5 pin or bolt 8 secured to the side rails 6 and extending thru a spacer 9 having a flat bearing surface for the legs and these spacers serve to space the legs slightly from the inner face of the rails 6. An angle bracket 10 secured to each corner portion of the top framing as by a fastening element 11 serves to support the inner end of the pivot 8. The legs 7 are pivoted between the spacer 9 and projecting flange of the angle bracket 10 and from Figure 5 it will be seen that this manner of pivotally mounting the legs provides a reinforcing means for the corner portions of the table frame.

Referring first to the specific construction of the leg bracing means A shown in Figures 1 to 5 inclusive, an arrangement is provided whereby the legs are braced in two directions when opened for use, with means associated with one of the bracing members to retain the legs in an open position. The brace means A for each of the four legs of the table comprises a pivoted brace arm 12 which is foldable with the legs, and a retaining brace arm 14 having pivotal connection with the legs and slidable connection with the side rail along which the leg is intended to be folded. The pivoted brace arm 12 is formed of strip metal and is pivoted at one end as upon a pin 13 to the leg 7 at a distance suitably spaced from the pivot 8, with the pin 13 extending parallel to the pin 8. Secured inwardly of each side rail 6 adjacent each of the brackets 10, are angle-shaped brackets 15 secured to the side rails by the fastening element 16. These angle brackets 15 form pivotal mountings for the opposite ends of the brace arms 12, the arms 12 being connected to the brackets by the pivots 17 which are in substantial axial alignment with the pivot 8 for the legs 7.

Secured also by means of the fastening element 16 is a spring clip 18 which yieldably engages the free end portions of the legs 7 to yieldably hold the legs in a folded position along their respective side rails 6. These spring clips 18 are of substantially Z shape in formation as shown in Figures 2 and 3.

Arranged at the inner side of each side rail 6 to extend longitudinally thereof is a slide rod or bar 20 having offset ends 21 secured to the side rails by fastening elements 22. The body portions of the slides 20 extend parallel with the inner faces of the rails 6 and the offset at that end of the slide adjacent its respective leg forms a stop shoulder engageable by the braces 14 to limit opening movement of the legs. The brace arms 12 are pivotally connected at one end upon the pins 13 and at their opposite ends are provided with outwardly bent portions 23 apertured as at 24 to slidably receive the slides 20. These right angularly bent end portions 23 provide stops adapted to abut the offset forward ends of the slides 20 as shown in Figure 2 to limit opening of the legs 7. When the legs are swung to a closed position longitudinally of the rails 6 the offset ends 23 have sliding movement along the slide rods, while the opposite ends of the brace arms pivot on the pins 13.

Mounted inwardly of each side rail 6 as upon suitable pins 26 is a spring catch 27 providing means for automatically locking the legs in an open or extended position. These spring catches

27 are provided adjacent their free ends with an offset 28 and beyond the offset with a finger grip portion 29. The offset 28 provides shoulders adapted to drop behind the outwardly flanged end portions 23 of the retaining brace arms 14 for holding the portions 23 in firm engagement with the offset at the forward end of the slides 20. In Figures 2 and 3, it will be noted that the body portion of the spring leaf forming the catch 27 extends in angular relation to the slide rod 20 so that upon swinging movement of the legs to an open position the brace arm portion 23 will cause the spring to yield and allow for the portion 23 to readily move to a position engaging the offset 21 at the forward end of the slide rods. At the limit of opening movement of the leg 7, the offset 28 will spring to a position behind the portion 23. When desiring to fold the legs it is merely necessary to press upwardly on the end 29 of the spring catches so as to move the offset 28 out of holding engagement with the retaining brace arms. The legs may then be folded to positions longitudinally of the rails 6 and retained in a folded position by the spring clips 18.

Referring now to the form of leg bracing B, shown in Figures 6 to 10 inclusive, the form of bracing herein shown is intended to be formed from a suitable gauge wire or rod of circular cross section. The bracing means B for each corner leg of the table comprises a pivoted brace rod or arm 30 and a retaining brace arm or rod 31 which extend in right angular relation from the legs when in an open position to brace the legs in two directions.

The pivoted brace arm 30 for folding movement with the legs, is formed at one end with an eye 32 adapted to receive a pivot pin 33 extended thru the legs in parallel relation to the pivots 8 for the legs. The brace rod 30 extends diagonally from the leg 7 and has its upper or opposite end formed into a bearing portion 34 for pivotal mounting in a hinge barrel 35 pressed from one corner portion of a U-shaped spring clip 36 secured by its apertured flange 37 to the side rail 6 by the fastening element 38. The spring clips 36 are provided with a yieldable flange 39 adapted to yieldably grip the legs 7 when folded. Thus the clips 36 aside from providing means for holding the legs in a folding position, also provide pivotal mountings for the brace rods 30 to permit folding of these brace rods with the legs.

Mounted longitudinally of the inner side of each side rail 6 is a slide rod or bar 40 formed from round stock and formed at each end with an eye for receiving fastening elements 41 for attaching the slide to the rail. The ends of the slides 40 are offset for spacing the body portion of the slides from the inner surface of the side rail and the offset at the forward ends of the slides provides a stop shoulder 42 adapted to be engaged by the sliding end of the retaining brace rods 31 to limit opening movement of the legs. The forward offset ends of the slides 40 are preferably set into recesses 43 for closer spacing of the slide rods to the side rails 6.

The retaining brace rods 30 are formed at one end with an end 44 for pivotal mounting upon the pin 33 serving to connect the brace rods 30 to the legs 7. The opposite end of the brace rod 31 is formed with an eye 45 for receiving the slide rods 40 whereby one end of the brace rods 31 are slidably connected to the slides. These eyes 45 are adapted to abut the shoulders 42 and

limit opening swinging movement of the legs as clearly shown in Figure 6. A spring catch 46 is provided for each slide rod 40 and these spring catches are also in the form of leaf springs anchored at one end as at 47 to the side rails 6 and normally spring urged at their free ends toward the slide rods. The leaf springs 47 are formed with loops 48 adapted to extend over the shoulders 42 and provide a stop shoulder adapted to spring behind the eye 45 to hold the eye in engagement with the shoulder 42 and prevent closing movement of the table legs. The free end portions 49 of the catches 46 provide finger grips for raising the catches to permit folding movement of the table legs. Thus the spring catches 46 act to automatically lock the table legs in an open position by holding the eyes 45 of the pivoted and sliding brace rods 31 in engagement with the shoulders 42 acting to limit opening movement of the table legs.

Referring now to the form of brace means C shown in Figures 11 to 13 inclusive, this form of brace means differs from that shown in Figures 1 to 5 inclusive only in a slightly different construction of the slide bars, and the locking means for the retaining brace arms and therefore like reference characters have been applied to corresponding parts. In the form of brace means C, the slide bar 20' is formed with the offset ends 21' for attachment to the side rails 6 by the fastening elements 22'. The slide bar 20' is formed with a reduced slide portion 50 providing a stop shoulder 51 against which the apertured portion 23 of the retaining brace arm 14 abuts to limit opening movement of the table legs. The apertured portion 23 has sliding movement along the slide portion 50 during opening and closing movement of the table legs. Pivotaly mounted at one end as upon a pivot pin 52 to the inner side of the slide bar 20' forwardly of the stop shoulder 51 is a gravity actuated latch bar 53 provided with a notch 54 to receive the portion 23 when abutting the stop shoulder 51 and locking the table legs in an extended position. The latch bar 53 has a lug 58 struck from the upper edge of the bar and bent upon the body portion of the bar to form a stop lug engageable with the upper edge of the slide bar 20' to hold the latch in an inclined position as shown in dotted lines in Figure 11 whereby the offset end 23 of the retaining brace arm 14 may readily slide beneath the latch bar when the table leg is being swung open. This lug 58 serves to space the free end of the latch bar above the upper edge of the slide bar to permit automatic raising of the gravity actuated latch bar and allow movement of the offset 23 to a position held in the notch 54.

In opening the table legs for use, the table is disposed in an upright position with the top 5 uppermost. The legs may then be released from the spring clips 36 and swung to an open position so that the offset ends 23 of the retaining brace arms 14 slide beneath the latch bars 53. When the offsets 23 engage the stop shoulders 51, the latch bars will drop by gravity to a position as shown in Figure 11 so that the portions 23 are received in the notch 54. This serves to automatically lock the table legs in an open position. When desiring to fold the legs it is merely necessary to turn the table over into a position as shown in Figure 12, whereupon the latch bars 53 will swing by gravity out of holding engagement with the retaining brace bars and allow the legs to be folded. Thus in the

form of bracing means C, the table legs may be opened and folded without requiring manipulation of any releasing means either to permit opening or folding of the legs.

Thus, in each form of leg bracing means A, B and C, a means is provided to automatically engage the sliding ends of the retaining brace members to automatically lock the table legs in an open position.

Referring now to the form of bracing means A' shown in Figures 14 to 17 inclusive, this bracing means in its general construction is similar to the bracing means A shown in Figures 1 to 5 inclusive and therefore like reference numerals have been applied to corresponding parts. In the form of bracing means A', the spring clips 18 have been dispensed with and spring means associated with the slide bar and engageable by the retaining brace arm for retaining the table legs in a folded position.

Referring particularly to Figures 14, 15 and 17, an expansion coil spring 60 is disposed about the rear end of each slide bar 20 with one end of the spring abutting against the offset 21 at the rear end of the bar. These coil springs 60 are of such length as to be engaged by the offsets 23 of the retaining brace arms prior to swinging movement of the table legs to a fully folded position. The offsets 23 engage the forward ends of the coil springs prior to movement of the pins 13 into alignment between the pivots 8 of the legs and the sliding ends of the retaining brace arms. When the pins 13 are moved past center as in Figure 14, the spring 50 acting upon the offset 23 acts to urge the table leg toward the top 5 and thus hold the leg in a folded position within the framing of the table top.

In Figure 16, a U-shaped leaf spring 62, secured at one end by the fastening element 22, serves to exert a pressure upon the offset end 23 of the retaining brace arm for yieldably holding the leg in a folded position within the table top frame.

In each form of the invention, it will be noted that a retaining brace arm is provided having a pivotal connection at one end with the swinging legs and having a sliding connection at its opposite end with the table top frame into engagement with an abutment limiting opening movement of the legs, with means for automatically locking the brace arm against the abutment to prevent folding of the legs. It will also be apparent that a novel arrangement has been shown for holding the legs in an open position thru automatic engagement with a solid brace arm having pivotal mounting at one end and slidable mounting at its other end. The arrangement disclosed also permits the legs to be braced in two directions when opened for use.

Changes in detail may be made to the forms of invention herein shown and described, without departing from the spirit of the invention or the scope of the following claims.

I claim:

1. In a folding table, a top frame embodying a side rail, a leg pivotally attached to the side rail to fold inwardly thereof, a slide mounted longitudinally upon the inner side of the rail including a body portion having a stop shoulder formed at one end thereof, a brace arm pivotally connected at one end to the leg and provided at its opposite end with a guide portion slidable on the slide into engagement at one side with said stop shoulder when the leg is swung open, and a keeper having an offset intermediate its

ends providing a shoulder engaging the opposite side of the guide portion when engaging the stop shoulder to prevent folding movement of the leg.

- 5 2. In a folding table, the combination with a top having a frame embodying marginal side rails, and legs pivotally connected to the frame at the corner portions thereof for folding movement along the side rails, of bracing means for the legs when extended, comprising slides mounted to extend longitudinally of the inner side of each side rail and each having an integrally formed stop shoulder at their forward ends, brace rods pivotally connected at one end to the legs and having guide portions at their opposite ends offset toward said side rails and slidable on the slides into engagement with the stop shoulders, a leaf spring secured at one end to each side rail above the slides and having their free ends spring urged toward the forward ends of the slides, said springs formed intermediate their ends with a stop shoulder engageable behind the offset guide portions to retain the same in engagement with said stop shoulders, and beyond the stop shoulder with a finger grip portion for releasing the spring to permit folding of the legs.

3. In a folding table, the combination with a top having a frame embodying a side rail, and a leg pivotally connected to the frame at a corner portion thereof, of bracing means for the leg comprising a slide rod secured at its ends inwardly of the side rail and having an offset formed thereon at its forward end providing a stop shoulder, a retaining brace rod pivotally connected at one end to the leg and provided at its opposite end with an eye movable along the slide into engagement with the stop shoulder, and a spring keeper engageable with the eye when moved into engagement with the stop shoulder.

4. In a folding table, the combination with a top having a frame including a side rail, and a leg pivotally mounted at one end to the frame at the corner portion thereof, a slide mounted longitudinally of the inner side of the side rail, a brace arm pivotally connected at one end to the leg and having a guide portion at its opposite end slidable along the slide, and spring means engageable with the guide portion when the leg is folded for yieldably holding the leg in a folded position along the side rail.

HENRY T. TUCKER.

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